

Claims

1. Arrangement of a front hood (17) on a vehicle, having at least one hinge device (1) that lies in the rear when viewed in the direction of travel, in the form of a four-joint (3, 4), having a long and a short connecting bar, whereby the front hood (17) can be pivoted by means of the hinge device (1) during normal opening and closing, and can be raised in the rear region in the case of a collision of the vehicle,

characterized in that

the hinge device (1) has a spring element (2) that activates an adjustment lever (7) in the case of a collision of the vehicle, which lever in turn acts directly on the front hood (17) and rests against the latter directly or by way of intermediate elements (5, 6), whereby the joints (19) of the four-joint (3, 4) on the front hood side are fixed in place on a pivot lever (15), in articulated manner, which lever, in the state of rest, is releasably fixed in place on the front hood (17) with one

end, and can be pivoted about a rotary joint (6), relative to the front hood (17), with its other end, in the region (18) of the assignment of the adjustment lever (7) to the front hood (17), and the adjustment lever (7) raises the front hood (17) during a collision of the vehicle, guided by the connecting bars (3, 4) of the four-joint, and raises the pivot lever (15), which comes loose from the front hood (17) on one side, as compared with the state of rest.

2. Arrangement according to claim 1, characterized in that the pivot lever (15) is releasably fixed in place on the front hood (17) with its one end, in such a manner that when a predetermined force in the direction of the change in position of the adjustment lever (7) is exceeded, its releasable connection with the front hood (17) is released when the adjustment lever (7) is triggered, and it can be pivoted about its rotary joint (6) disposed on the front hood (17) at its other end.

3. Arrangement according to claim 2, characterized in that the pivot lever (15) is fixed in place on the front hood (17)

with one end, by way of a non-positive-lock and/or positive-lock connection (16, 14).

4. Arrangement according to claim 3, characterized in that the non-positive-lock or positive-lock connection (16, 14) is formed by a mechanical catch connection in which a functional edge (16) on the pivot lever (15) engages behind a counter-shape (14) disposed on the front hood side, and is locked in place with it in the normal state of rest of the front hood (17).
5. Arrangement according to one of the preceding claims, characterized in that the front-hood-side end of the adjustment lever (7) stands in a non-positive-lock connection by way of an essentially pin-like segment (18) on the front hood (17).
6. Arrangement according to claim 5, characterized in that the essentially pin-like segment (18) on the front hood (17) can be lifted off from the adjustment lever (7) during normal operation of the hinge device (1) to open the front hood (17) by means of the four-joint (3, 4).

7. Arrangement according to one of the preceding claims, characterized in that when the adjustment lever (7) is released in the case of a collision, the adjustment lever (7) suddenly pushes the pin-like segment (18) on the front hood (17) in the direction towards the raised position of the front hood (17) and, in this connection, the pivot lever (15) releases its non-positive-lock connection (16, 14) with the front hood (17), at its end releasably fixed in place on the front hood (17), and pivots relative to the front hood (17) about its rotary joint (6) formed at its other end.

8. Arrangement according to one of the preceding claims, characterized in that in the normal state of rest of the front hood (17), the front-hood-side end of the adjustment lever (7) is disposed and fixed in place on the car body side in such a manner that the essentially pin-like segment (18) on the front hood (17) rests against the adjustment lever (7).

9. Arrangement according to one of the preceding claims, characterized in that the rotary joint (6) of the pivot lever (15) on the front hood (17) and the pin-like segment (18) of the front hood (17) have an identical point of rotation.
10. Arrangement according to one of the preceding claims, characterized in that because of the rotary movement of the pivot lever (15), on the one hand, and the pivoting movement of the adjustment lever (7), on the other hand, the front hood (17) performs a pure pivot movement about a closure device disposed on the front end side of the vehicle, on the front hood (17), without any relative displacements of the front hood (17) in the longitudinal direction of the vehicle, relative to the closure device.
11. Arrangement according to one of the preceding claims, characterized in that the spring element (2) has a mechanical leg spring that is biased in the normal state of operation of the arrangement.

12. Arrangement according to one of the preceding claims, characterized in that the adjustment lever (7) is held in the state of rest, by means of a triggering device (9, 10, 11), in its state of being biased by the spring element (2).
13. Arrangement according to one of the preceding claims, characterized in that the triggering device (9, 10, 11) can be controllable by way of an actor (10), in the case of a collision, and releases the adjustment lever (7) from its biased state, by way of lever devices (10), with mechanical amplification.
14. Arrangement according to claim 13, characterized in that the actor (11) has an electromagnetic switch.
15. Arrangement according to one of the preceding claims, characterized in that the triggering device (9, 10, 11) has a hook-like segment (9) that engages behind an assigned segment (13) of the adjustment lever (7) in the state of rest, and secures the adjustment lever (7) in its position counter to the effect of the spring element (2).

16. Arrangement according to claim 15, **characterized in that** the hook-like segment (9) of the triggering device (9, 10, 11), the adjustment lever (7), and the spring element (2) can be made to be brought back into their starting state after triggering of the front hood (17), and can be activated again.
17. Arrangement according to one of the preceding claims, **characterized in that** the spring element (2) has a fluid medium.
18. Arrangement according to one of the preceding claims, **characterized in that** the pivot lever (15) and the pin-like segment (18) are fixed in place on the front hood (17) by means of a common assembly part (5).